

providing a second wafer having a first substantially planar surface and a second substantially planar surface;

forming a recess in said first wafer substrate;

bonding said second wafer to said first wafer such that at least part of said second wafer first surface bonds to said first wafer so that at least part of said second wafer first surface overhangs said recess;

after said bonding step, selectively removing a portion of said second wafer from said second wafer second surface through to said second wafer first surface such that a thin structure is formed overhanging said recess;

providing a patterned metal layer on the first substantially planar surface of the second wafer, such that the metal layer is patterned to coincide with said recess;

stopping the selective removal step at or near said metal layer to form the thin structure; and

removing said metal layer.

Discussion

The Applicants appreciate the Examiner's examination of the pending claims. Claims 1-6, 14-18, 20 and 21 were rejected. Claim 19 was objected to. Newly submitted claim 22 was withdrawn from consideration as being directed to a non-elected

invention. Claim 22 is canceled. Claims 7-13 and 23 are allowed.

Base claim 14 and its dependent (objected to) claim 19 are rewritten as new claim 24, which should be allowable.

The rejected claims were deemed by the Examiner under 35 U.S.C. 103(a) as unpatentable over Atobe et al. The Examiner set forth some process steps from Atobe et al. The Examiner indicated that while Atobe et al. teach removing a portion of said silicon substrate before the bonding step, and in claim 1 of the present application, the removing step is done after the bonding step, and that in general the transposition of process steps or the splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner, and result, was held to not patentably distinguish processes. The Examiner added that the Applicant has not provided any evidence that removing a portion of the substrate after the two substrates have been bonded together would yield new or unexpected results. The Atobe et al. process, as noted by the Examiner, may be adequate for making mirrors, light modulators and the like. But it would not be adequate for making micromachined gyroscopes, accelerometers and so forth. Many of the parts of these latter devices are etched and become separate and apart from the silicon wafer and maintain their

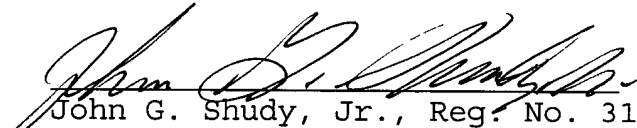
relative positions because of their bonding to the glass wafer. If the silicon wafer were etched first into separate parts and pieces that make up the device, such as a gyro or accelerometer, these parts and pieces would fall out. It would be a very large task to pick up these parts and pieces and bond them into their proper place on the glass wafer, so as to result in the device having an appropriate structure and tolerances. Thus, because of this problem being solved by the Applicants' method, the present method would not be obvious. Thus, the Applicants very respectfully request allowance of claims 1-6, 14-18, 20 and 21.

Respectfully submitted,

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By Their Attorney,

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